

Support for the Amendments

Claim 1 has been amended to require C₁₂₊ oligomers having ethyl side groups, as set forth in the specification at paragraph [0024].

Claim 2 is amended to remove the "about" qualifier on the lower range.

The limitation of Claim 7 has been added to Claim 6 (so that no additional fee needs to be paid for the new claim discussed below).

Claim 20 has been amended to remove multiple claim dependency.

New Claim 24 finds support in previous Claim 23.

It is believed there is no possibility of new matter.

REMARKS

Claims 1-6, 8-16 and 18-24 are in the case.

The present claims relate to oligomerization of n-olefins in the presence of isoolefins, and to the production of long chain olefins C_{12+} olefins which are important starting materials in the production of *inter alia* sulfonate surfactants. A benefit of the process of the invention is that it provides a C_{12+} olefin fraction having a low amount of quarternary carbons; the presence of quarternary carbons makes a material more resistant to biodegradation. See the first paragraph of the Background section of the present disclosure.

Another benefit of the present invention is that it concentrates quarternary carbon atom-containing oligomers in C8 fraction, which, having an inherently high octane value, is an excellent additive to gasoline. See paragraph [0025] of the present disclosure.

Claim 1 now also requires that some C_{12+} oligomers have ethyl side groups.

In the previous Official Action, the previous claims were found to be obvious in view of EP 311310 ("EP '310").

EP '310 explicitly states that the side groups are only methyl groups. See page 3, line 19.

EP '310 is also silent on isoolefins in the 1-butene feedstock. EP '310 is very careful to state that the butene fraction oligomerized is 1-butene. There is no mistaking that 1-butene, not "butenes", is the monomer.

EP '310 does discuss C_{12+} fractions (e.g., pg. 3, lines 29+). However, the presence of quarternary carbon atoms, as would result from oligomerization of isoolefins, is not discussed.

The problem faced by the present inventors is not discussed. The advantages of the present invention - e.g., a lower amount of quarternary carbon atoms in the final C_{12+} product and thus a more biodegradable product is not discussed. The advantages of a higher fraction of quarternary carbons in a C8 fraction that can be sent to Mogas is not discussed.

In view of the fact that the present invention is directed to solving a problem caused by the presence of isoolefins in feed, particularly a feed from the unreacted effluent of an MTBE unit, Applicant's believe that the failure of EP '310 to suggest the presence of isoolefins and also

the failure to suggest the problem resulting from the presence of isoolefins means that this reference cannot fairly suggest the present claims. There is no reason why the features alleged to be inherent would *in fact* be inherent in the reference. The present specification teaches that isoolefins are usually not processed in such processes but rather it is n-olefins that are usually oligomerized in processes intending to produce C₁₂₊. Accordingly, obviousness is being found at one of the exact points of novelty of the present invention, without any evidence.

The previous Official Action states that "it is known to one of skill in the art that the feed is not 100% pure and, therefore it would have been expected that the feed employed in the EP reference would have contained a trace or negligible amount of iso-olefin. It is noted that the lower end of the claimed range, i.e., about 0.1 wt%, may be interpreted as containing trace or negligible amount of iso-olefin because "about permits some tolerance."

It is not clear whether it is being alleged that the 1-butene fraction in EP '310 inherently contains at least 0.1 wt% isoolefins, or that it would be obvious to have this amount. If it is the former, it is well-settled that the features alleged to be inherent must be inherent as of a certainty and not merely a possibility. If it is the latter, the Examiner is finding obviousness at one of the exact points of novelty without any evidence - and indeed contrary to what is stated in the specification. This is improper.

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For these reasons, Applicant's respectfully request that the rejection under §103 be withdrawn.

There being no further issues, Applicant's believe the present case is in condition for allowance. Early notice to this effect is earnestly solicited.

Respectfully submitted,

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Date

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